

CLAIMS

1. A hot air heater comprising heating wires wound around an insulating fire-resistant substrate, wherein a plurality of heating wires that are connected in parallel or series between an input line and an output line of an electric power supply line are wound around the insulating fire-resistant substrate in such a manner that current runs in opposite directions through the heating wires so as to cancel out electromagnetic waves generated from the heating wires.

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2. The hot air heater according to claim 1, wherein a first heating wire and a second heating wire are connected in parallel between an input line and an output line of an electric power supply line and are alternatively wound around the insulating fire-resistant substrate in the same direction such that current runs in opposite directions through the first and second heating wires so as to cancel out electromagnetic waves generated from the heating wires, and adjacent loops of the first and second heating wires have the same or substantially similar winding diameters.

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3. The hot air heater according to claim 1 or 2, wherein a ceramic honeycomb structure is disposed downstream of air heated by the heating wires.

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4. The hot air heater according to claim 3, wherein the ceramic honeycomb structure is furnished with a coating containing carbon powder, and the coated ceramic honeycomb structure has an emissivity of 0.8 or greater over the entire infrared wavelength region.

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5. The hot air heater according to claim 4, wherein the coated ceramic honeycomb structure has an emissivity of 0.9 or greater over the entire infrared wavelength region.

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6. The hot air heater according to claim 4, wherein the coating containing carbon powder is created by impregnation.

5 7. The hot air heater according to claim 3, wherein the ceramic honeycomb structure is disposed in the vicinity of the heating wires.

10 8. The hot air heater according to claim 3, wherein the ceramic honeycomb structure is coated with glassy carbon, and the glassy carbon coating is formed by impregnating the ceramic honeycomb structure with resin containing glassy carbon and calcining the impregnated ceramic honeycomb structure in a non-oxidizing atmosphere.